

GOVERNMENT OF THE DISTRICT OF COLUMBIA
BOARD OF ZONING ADJUSTMENT



Application No. 15434 of the President and Directors of Georgetown College, pursuant to 11 DCMR 3108.1, for a special exception under Section 211 for further processing under an approved campus plan to allow an addition to a power plant in an R-3 District at premises 37th and O Street, N.W., (Square 1321, Lot 817).

HEARING DATES: March 13 and 14, 1991
DECISION DATES: April 3 and 24, 1991

FINDINGS OF FACT:

1. As a preliminary matter at the public hearing on the application, several parties requested that the application be postponed on the grounds that the application was incorrectly filed and advertised as a special exception for further processing under an approved campus plan; that the Board's consideration of the impacts of the proposed facility should be deferred pending review of the facility by other appropriate federal and local government agencies; that the size of the facility would trigger the need for the large tract review process; that parties did not receive appropriate notice; and that parties should have an opportunity to review an independently prepared Environmental Impact Statement prior to public hearing on the application. Counsel for the applicant objected to the requests for postponement. After hearing from all parties, the Board ruled that the public hearing on the merits of the case should proceed as scheduled and that the Board would consider the preliminary issues raised during the process of hearing and deciding the application.

2. The subject property is located on the Georgetown University campus which contains approximately 104 acres of land and is roughly bounded by Reservoir Road to the north, Glover-Archbold Park on the west, Canal Road on the south, and 35th and 36th Streets on the east. The campus is zoned C-1 and R-3. The site of the proposed facility is located within the southwest quadrant of the campus, east of McDonough Gymnasium, and is zoned R-3.

3. The applicant is seeking a special exception for further processing under an approved campus plan to allow for the construction of an addition to its central utility plant in order to house a 56 megawatt cogeneration facility on campus. The use of cogeneration technology will provide for the simultaneous production of steam and electricity from a single energy source. The proposed addition to the existing facility has been designed to meet the current and projected future needs of the University for

its steam requirements, chilled water needs, and electric power demand.

4. Section 211 of the Zoning Regulations provides that a college or university which is an academic institution of higher learning, including a college or university hospital, dormitory, fraternity or sorority house proposed to be located on the campus of a college or university, is permitted as a special exception in a residential district, provided that:

- a. Such use is so located that it is not likely to become objectionable to neighboring property because of noise, traffic, number of students or other objectionable conditions;
- b. In R-1, R-2, R-3, R-4, R-5-A and R-5-B Districts, the maximum bulk requirements normally applicable in such districts may be increased for specific buildings or structures provided the total bulk of all buildings and structures on the campus shall not exceed the gross floor area prescribed for the R-5-B District;
- c. The applicant shall submit to the Board a plan for developing the campus as a whole, showing the present location, height and bulk, where appropriate, of all present and proposed improvements, including, but not limited to buildings, parking and loading facilities, screening, signs, streets, and public utility facilities, and a description of all activities conducted or to be conducted therein, and of the capacity of all present and proposed campus development;
- d. Within a reasonable distance of the college or university campus, the Board may also permit the interim use of land or improved property with any use which the Board may determine as a proper college or university function; and
- e. Before taking final action on an application for such use, the Board shall have submitted the application to the District of Columbia Office of Planning and the District of Columbia Department of Public Works for review and report.

5. This request for special exception is submitted pursuant to the Georgetown University Bicentennial Campus Plan reviewed and approved by the Board in BZA Application No. 15302, Order dated October 12, 1990. The instant application is the first project submitted for approval under the approved Bicentennial Campus Plan.

6. The University has historically sought to achieve cost-efficient, environmentally-sound on-campus energy systems to address its utility needs and to enable the University to achieve

energy self-sufficiency to the maximum extent possible. All of the campus plans submitted by the applicant since the adoption of the Zoning Regulations in 1958 have addressed the utility needs of the University. The proposed addition to the existing facility corresponds with the proposed location, size and design elements for the central utility plant contained in the approved Bicentennial Campus Plan.

7. By Order No. 9539, dated April 8, 1968, the Board first approved the location of a heating and cooling plant on the subject site. At that time, the Board concluded that the location, design and operational characteristics were not likely to become objectionable to neighboring property and conditioned its approval so that no service and supply vehicles serving the heating and cooling plant would use Prospect Street. The Board noted that although this approved location for the heating and cooling plant did not coincide precisely with that indicated in the campus plan then in effect, the site designated for such use on the campus plan was the subject of Appeal No. 8923 which was denied without prejudice by the Board in its Order dated December 28, 1967. The Board further concluded that the location was a substantial distance from neighboring property, screened from the park by the gymnasium, and designed in a way which permitted the building to be depressed and set back into a hillside.

8. In BZA Application No. 12316, by order dated July 21, 1977, the Board granted a special exception to the University for the construction of an 11,998 square foot addition to the heating and cooling plant. This addition was constructed as a demonstration project under a grant from the federal government and has been operated under the supervision of the U.S. Department of Energy and the Environmental Protection Agency. The purpose of the project was to demonstrate the feasibility of the use of high sulphur content coal by institutions such as the applicant in furtherance of the national policy promoting energy conservation through the use of coal, including the development of new technological advances such as cogeneration. The first objective of the project was achieved by the construction of a fluidized bed system allowing the increased use of coal without adverse environmental impacts usually associated with coal consumption by burning coal with limestone to absorb the pollutants.

9. In BZA Application No. 13894, by order dated April 11, 1983, the Board approved a second special exception allowing an addition to the existing heating and cooling plant to help achieve the second objective of the project by providing space for equipment to implement the design and technology refinements necessary to permit an increase in steam pressure used in the cogeneration of electricity.

10. The University's on-campus energy plan has been developed

in accordance with its academic mission of not only educating the leaders of tomorrow, but also addressing current problems facing the community including public interest issues such energy, and public health. The University's research efforts further its academic mission and national and local conservation policies by providing a demonstration laboratory function for projects fielding new technology for conservation of energy and protection of the environment as part of the Congressionally recognized National Exemplar Integrated Community Energy System (NEICES).

11. In the approved Bicentennial Campus Plan, dated October 12, 1990, the Board approved the proposed cogeneration facility in concept, noting that a power plant has been located on the campus since 1968 and that approval of such facility would require special exception review and approval at a later date. The Board found in its Order that the type of proposed use was not inappropriate provided that the use furthered the essential mission of the University and did not result in substantial adverse impacts on the surrounding community.

12. The existing facility occupies approximately 35,530 square feet of land area. The proposed addition will abut the existing structure on two sides with an additional lot coverage of approximately 12,324 square feet. The existing facility contains approximately 54,253 square feet of floor area. The proposal calls for the addition of approximately 28,352 square feet of floor area, including the remodelling of the existing mezzanine area, for a total floor area of approximately 82,605 square feet. The height of the facility will measure approximately 50 feet with an 18 foot high screen, exclusive of the stack which will rise approximately 90 feet above the roof the plant building.

13. The proposed expansion of the existing central utility plant will enable the University to increase its ability to produce steam and chilled water for its existing and future buildings on campus, including student housing, classrooms, offices and hospital facilities. The University identified several priority projects which are currently identified in the approved campus plan including the Perinatal Building, the Medical Research Building, the Lombardi Cancer Center, a new parking garage and on-campus housing for undergraduate students. In order to proceed with construction of those projects, the University must be assured of a reliable source of steam service and must provide for additional chilled water capacity.

14. The current age and condition of the existing central utility plant equipment would warrant replacement of the existing equipment within the next eight to ten years with a substantial commitment of new funds for new equipment and continued operating costs. The University's goal to provide the highest quality educational, medical and other services to the community at the

lowest possible cost requires that it take on the fiscally responsible task of providing the most cost efficient method of meeting its basic utility needs. The only way for the University to provide for its need for reliable utility service in a cost-efficient way is to expand the existing utility plant in some way.

15. The capacity of the proposed cogeneration facility was based on the University's analysis of its projected needs to fulfill its steam requirements, chilled water needs and electrical power demand.

16. All of the steam power produced by the facility will be used directly by the University. The location of the steam-producing facility on campus is necessary to provide heat output at or near the site to be served because steam heat is perishable and cannot be transported for long distances. The University estimated its existing steam needs to average 80,000 steam pounds per hour (pph). The existing steam needs fluctuate from a high of 130,000 steam pounds per hour during the summer peak, to 95,000 steam pounds per hour during the winter months, to a low of approximately 40,000 steam pounds per hour during months during which there is little or no heat or air conditioning activity. The existing plant has the capacity to meet the steam needs of the University. However, the current age and condition of the equipment would require replacement to assure continued reliable steam service. The proposed cogeneration facility will provide a steam capacity of 225,000 pph. The University estimates that its steam usage will grow to 217,000 pph by the year 2010. The projected steam load addresses peak demand. The majority of steam use provides for on-campus air conditioning, followed by use of hot water, cooking and sterilizing, and then plant use for pumps and processing. In addition to meeting the University's steam needs, the usage of steam will provide an additional 4,700 tons of absorption chilling needed for cooling University buildings.

17. The University is at its chilled water capacity at present and thus has an immediate need for additional equipment to increase that capacity before any additional construction can take place on campus. The proposed cogeneration facility will simultaneously produce steam and electric power. All of the steam produced will be used on campus. In addition, the steam produced from cogeneration will provide the energy source for chilled water for air conditioning to meet the University's immediate need for increased chilled water capacity.

18. The University demand for electric power placed a load of 20 megawatts on the Potomac Electric Power Company (PEPCO) grid for 1990. The existing co-generation facility has an electrical rating of 2,800 kilowatts. The University estimates a projected growth of electrical demand to 52 megawatts by the year 2010. The electricity generated by the proposed cogeneration facility will be

delivered directly into the PEPCO public utility grid and the University will purchase electric power directly from PEPCO through a power purchase agreement similar to the one in place for the existing 2,800 kilowatt cogeneration facility in furtherance of the goal of the Public Utility Regulatory Policies Act (PURPA), adopted in 1978, to improve energy conservation and fuel consumption efficiency. PURPA encourages the use of cogeneration facilities in an effort to meet its conservation goals.

19. The need for reliable utility service is recognized as an integral component of university campuses throughout the country, particularly those which provide medical facilities such as the applicant. The Director of the University's Medical Center testified as to the needs of the Medical Center for reliable utility service. The Medical Center is one of the largest consumers of energy on campus due to its dependence on increasingly high technology equipment. Because of the Medical Center's responsibility for patient comfort and care, the University can not risk not having the power capacity necessary to meet its needs at all times.

20. The applicant cited several existing university campuses throughout the country which have chosen to go forward with cogeneration projects in order to provide reliable utility service in an environmentally safe and cost efficient manner. By installing and utilizing the cogeneration process for the production of power in a reliable and cost-efficient manner, the University estimates that it will be able to meet all its present and future heating and cooling needs while simultaneously providing for the economical generation of electricity. The applicant estimates that it will save approximately \$11 million in capital costs and approximately \$500,000 to \$1 million per year on its utility bills through implementation of the cogeneration process.

21. The proposed cogeneration facility will have the capacity to produce 56 megawatts of electricity. The projected energy needs of the University were based on an analysis of the growth of the University over the past five years used to determine a formula for watts per square foot of growth. Based on that formula, the University asserts that based on the projected growth of the campus, the University will need approximately 36 megawatts by the year 2000 and approximately 52 megawatts by the year 2010.

22. The University estimates that by the year 2010, the University will be using approximately 93% of the electricity generated by the proposed facility. When consideration is given to the demand for steam, chilled water and electricity, the University estimates that it will be using 70% of the total capacity of the facility during its first year of operation, and 95% of its total capacity by the year 2010. Based on these projections, the University contends that the capacity of the proposed facility is

appropriate to meet its existing and future energy needs.

23. The proposed facility will tie into the existing underground water, sewer, storm drainage, steam, condensate and chilled water lines on campus. The connection to PEPCO will require two underground cables running on campus along the west side of McDonough gymnasium. These cables will connect to the existing underground PEPCO lines on the old trolley right-of-way adjacent to Canal Road. There will be no overhead or above ground power lines on campus and the connections to PEPCO will be to existing power lines which then continue to the PEPCO network.

24. The proposed cogeneration facility will not provide a direct source of electricity for the University. All of the electricity generated by the proposed facility will be sold to PEPCO pursuant to the Power Purchase Agreement between Dominion Energy, Inc., and PEPCO, which governs the construction and operation of the proposed facility, marked as Exhibit No. 156 of the record. The University will purchase all of its electric needs from PEPCO in essentially the same manner as it does now.

25. The applicant testified that it is not technically, operationally or economically feasible to provide electricity directly from the proposed cogeneration facility. In order to channel the electricity generated by the proposed facility, the University would have to construct extensive duplicate switching and distribution facilities necessary to provide a level of safety and reliability comparable with that presently provided by PEPCO. In addition, even if the construction of the appropriate facilities were practical, the University would be forced to contract with PEPCO for back-up service in case of malfunction and for scheduled maintenance outages. The back-up contract with PEPCO would require PEPCO to hold the needed capacity in reserve within its system for University use. The cost of such back-up contract would add several hundred thousand dollars to the University's energy costs and the necessity of PEPCO to generate and maintain such reserves within its system would negate the environmental benefits which would result from cogeneration. The proposed interchange of electricity with PEPCO would allow the applicant to accomplish the goals of cogeneration for its electric and steam needs, would maintain the reliability and integrity of the existing PEPCO distribution system, would avoid the necessity of construction of extensive distribution switching facilities by the University, and would defer the need for additional capacity improvements by PEPCO.

26. In planning for the proposed cogeneration facility, the University sought the expertise and experience of an independent consultant in order to provide for the most efficient design of operation of the type of facility required. Dominion Energy, Inc. was selected based on its experience and proven capability in this area to ensure that the construction of the proposed facility would

comply with all technical and environmental requirements, as well as meet the needs of the University. In addition the project was also designed to implement District and National energy policy objectives. The use of cogeneration would result in the savings of over 8 million gallons of fuel oil over the initial year of operation in response to the nation's needs to conserve available energy sources.

27. The applicant testified that, in order to meet the University's growing needs, incremental development of the proposed facility is not feasible. The University's need for steam and chilled water capacity is the driving force behind the capacity of the proposed facility. The steam demand for 1993 would require a facility of 34 megawatts. The demand for steam would continue to rise during further development of the campus and would require a facility capable of additional steam capacity by the year 2000 necessitating further review procedures and the construction of another addition. Reducing the capacity for electrical generation would impact on the economical provision of steam energy. The initial cost of construction of the smaller facility would be approximately 80% of the cost of the proposed facility but would operate at only 60% of the capacity of the proposed system. Additional costs would be incurred when changes in demand levels necessitated further additions to the facility. However, the physical size of the facility, equipment, clearances, and stack would be virtually the same for a reduced capacity cogenerator as the proposed facility. The cost savings of the proposed project are known. The development of the needed energy capacity for the University's projected needs over the years would result in an increase of approximately 25% in costs for the project, with no way of ensuring the University's projected savings of \$500,000 to \$1 million per year on steam bills due to inefficiencies and lack of economies of scale if phased development is employed. In addition, phasing of the project would lessen or negate any public benefits derived from the proposed cogeneration project.

28. The proposed location in the southwest quadrant of the campus is the site of the current central utility plant and has previously been approved by the Board for utility use. The Board found in previous orders that the subject location is relatively isolated from neighboring communities. The continued location of the proposed facility on this portion of the campus was determined by the need for the cogeneration facility to tie into and operate in conjunction with the existing utility plant.

29. The proposed addition has been designed to match the existing facility and nearby structures in terms of building materials and detail. The site is proposed to be constructed of brick and concrete and will be landscaped in accordance with the landscape plan approved as part of the University's Bicentennial Campus Plan. The proposed location of interior equipment shown on

the plans submitted with the application may need to be refined in order to meet code and environmental requirements. The site is located within the Georgetown Historic District and is, therefore, subject to review by the Commission of Fine Arts. The applicant requested that the Board approve flexibility in the plans submitted to permit the applicant to make minor modifications in order to meet the code requirements with regard to the location of interior equipment and, further, to address any recommendations which may be made by the Commission of Fine Arts with respect to the exterior design of the facility.

30. Because Georgetown University is located in an urban setting within a generally residential neighborhood with some institutional and commercial uses, the location and design of the proposed facility took into consideration the impacts of the facility due to its proximity to the residential community, as well as on-campus housing and patient care facilities. The proposed facility is removed approximately 750 feet from the Foxhall neighborhood to the west; approximately 1,000 feet from the medical facility to the north; approximately 450 feet from the nearest on-campus residential facility and 1,300 feet from the Georgetown neighborhood to the east; and approximately 800 feet from Canal Road to the south. The closest proposed residential hall will be located approximately 300 feet from the facility.

31. The proposed facility will not be visible from any boundary of the University due to its location adjacent to a hill, the distance between campus boundaries and the facility; and existing and proposed landscaping. The 90 foot stack will be visible from a distance. The stack should have minimal impacts on the skyline of the area because it is approximately 90 feet lower than the existing landmark Healy Tower and is of lesser size and height than two existing stacks for the flour mill and utility plant east of the Key Bridge.

32. The facility has been designed to mitigate and minimize any potential impact due to noise generated during operation of the facility. The cogeneration facility fully complies with D.C. Noise Regulations which require that the sound level not exceed 60 decibels during daytime hours and 55 decibels during nighttime hours as measured from the property lines. The applicant testified that the noise levels generated by the facility would further be minimized due to the location of wooded parkland between the facility and the nearest residence approximately 775 feet away, the noise suppression equipment to be implemented in the operation of the facility, and the distance between the campus property lines and nearby residences.

33. The applicant prepared an Environmental Impact Statement (EIS) relative to the proposed facility to provide technical analysis and demonstrate compliance with all applicable

environmental regulations. An application under the Environmental Policy Act was submitted, a public hearing was held on February 27, 1991, and the record was closed on March 6, 1991. The EIS was presented for regulatory review by the D.C. Department of Consumer and Regulatory Affairs (DCRA) and the Environmental Protection Agency (EPA) pursuant to the Environmental Policy Act of the District of Columbia, as well as review of an air permit application by both DCRA and EPA. The applicant has made refinements to the project in accordance with the input and recommendations received from both agencies, including less oil firing and use of selective catalytic reduction when firing oil. The improvements to the project reduced emission levels so that the project is now classified as a minor modification with respect to the air permit process. The applicant must comply with the operations and emission regulatory controls prescribed. Any such conditions will be federally enforceable.

34. The modernization of the central utility plant through the implementation of cogeneration technology will result in the closing down of the existing coal-fired burner, placing the existing natural gas/oil-fired boilers on standby, changing the alternate fuel to a low sulfur fuel oil, and construction of a cogeneration facility using natural gas as its primary fuel. These changes will produce reductions in emissions from the existing central utility plant, leading to improved air quality and other environmental improvements. The project will result in a reduction of carbon dioxide emissions by 61%, a reduction of nitrogen oxide emissions by 41% and a reduction of sulfur dioxide emissions by 33%.

35. The proposed facility will require the on-site storage of fuel oil for back up purposes during possible interruptions of fuel service, water treatment chemicals and ammonia necessary for the operation of the cogenerator. The two existing 90,000 gallon capacity fuel storage tanks will be replaced with a new state of the art fuel oil storage system with a capacity of 240,000 gallons. The new storage tank will be equipped with a leak detection monitoring system and will conform with EPA underground storage tank regulations resulting in a higher degree of protection than required by Federal and local regulations. The basic and acidic materials used to neutralize wastewater will be stored in tanks located inside the building over concrete pads with a berm sized to contain the entire contents of the tank to mitigate any possible adverse conditions on campus or to nearby properties. The cogeneration process requires the use of ammonia in conjunction with air pollution control devices, specifically the selective catalytic reduction unit. The ammonia used in the proposed facility is aqueous ammonia, rather than anhydrous ammonia. The applicant testified that the use of aqueous ammonia, which is at least 70% water, presents a lower hazard level than anhydrous ammonia due to the nature of the type of ammonia and safety

features which have been implemented with regard to its transport and production.

36. The use of solvents is necessary to maintain equipment, such as the removal of grease from mechanical parts. Some spent solvents are considered as hazardous waste materials under EPA standards. The spent solvents expected to be generated by the proposed cogeneration facility are not expected to exceed four 55-gallon drums of waste per year and will be stored within the building over concrete pad and berm to contain any spilled material. The University currently stores and ships hazardous waste generated by other uses on campus. The storage of hazardous waste generated by the proposed facility does not alter the existing status of the University with regard to its current ability to store and ship hazardous waste in accordance with applicable federal and local government hazardous waste regulations.

37. The operation of the existing boilers requires the shipment to the site of fuel oil, coal and limestone and the removal of spent materials by truck resulting in approximately 2,100 truck trips per year. The proposed use of cogeneration technology will result in a reduction of approximately 6,300 tons of solid waste per year generated by the existing coal-fired boiler. The proposed facility is expected to generate approximately 550 truck trips per year, a reduction in overall truck trips of approximately 70%. The reduced number of truck trips will result in overall positive impacts due to a reduction of air pollution and traffic on neighborhood streets generated by existing traffic to the central utility plant. All existing routes for deliveries to and from the power plant will be continued. There will be no increase in the number of students or employees of the University as a result of the project.

38. The applicant presented three witnesses with regard to the issue of electro-magnetic fields (EMF), including a medical expert in the field of cancer, a medical expert in the field of epidemiology, and an engineer specializing in issues relative to the calculation of EMF from transmission lines. The medical experts testified that there is no persuasive scientific data or support for the hypotheses that power frequency electric and/or magnetic fields causes cancer in humans. The engineer testified that the project posed no objectionable impacts in terms of EMF. The cogeneration facility will connect to existing PEPCO 69 Kv transmission lines at the southern edge of the campus near Canal Road. The existing underground transmission lines separate to overhead and underground lines in the area of MacArthur Blvd. and Reservoir Road. There is an existing 13 Kv distribution line on the poles for the overhead section of the 69 Kv facility. The engineering expert calculated that the additive and subtractive factors associated with the fields generated by both the existing

13 Kv circuit and the proposed energizing of the 69 Kv circuit could result in a cancellation of magnetic field from the two sources, resulting in a reduction of the peak magnetic fields. The engineering expert testified that the total fields existing on these lines are in the same order as those found in every day life. All three witnesses testified that the project would have no objectionable impacts in terms of increased EMF exposure or risk.

39. The applicant filed a proposed update of its housing program as required by the Board's Order No. 15302 approving the University's Bicentennial Campus Plan. The applicant proposes to expedite the construction of on-campus housing for undergraduate students by providing 925 new beds on campus by 1995, two years earlier than the projected 1997 date contained in the campus plan. The applicant testified that since undergraduate students living off campus have been identified as one of the largest University impacts on the neighborhood, the expeditious provision of the planned on-campus housing will help improve neighborhood conditions and reduce any objectionable impacts.

40. The applicant submitted a chronology of community meetings held in accordance with the guidelines established by the Board pursuant to its campus plan approval. The applicant noted that some of the participants in the quarterly meetings had filed an appeal of the Board's decision in Application No. 15302 with the D.C. Court of Appeals and were also participating in opposition to the instant application.

41. The Board waived its seven-day filing requirement to accept the report of the Office of Planning at the public hearing of March 13, 1991.

42. The Office of Planning (OP), by memorandum dated March 11, 1991, recommended that the application be approved with conditions. The Office of Planning was of the opinion that the proposed co-generation facility was in general compliance with the provisions of Section 211 of the Zoning Regulations provided it meets all of the criteria for approval by the EPA, DCRA and the Commission on Fine Arts. The Office of Planning was further of the opinion that the proposed cogeneration facility was generally in compliance with the University's energy goals as evidenced by its existing facility, prior applications before the Board, and its approved campus plans; that the size of the proposed facility is appropriate in terms of reliably meeting the University's projected energy needs and minimizing impacts with regard to noise, traffic and emissions; that the project will reduce the overall truck traffic related to power plant operations; that the facility will fall well within the permitted floor area ratio requirements of 1.8; and, that the project will not create any objectionable environmental impacts in that it must comply with the findings and recommendations of appropriate federal and local review agencies

with regard to environmental, noise, and design impacts.

43. The Department of Public Works (DPW), by memorandum dated March 6, 1991, offered no objection to the project. The DPW was of the opinion that the reduction in truck trips to the subject site will have a positive impact on the surrounding street system.

44. The D.C. Fire Department, by memorandum dated November 19, 1990, offered no objection to the granting of the application with respect to its impact on emergency operations.

45. The Metropolitan Police Department (MPD), by letter dated November 26, 1990, offered no objection to the application. The MPD was of the opinion that the project will not affect the public safety in the immediate area or generate an increase in the level of police services now being provided.

46. The D.C. Office of Energy, by letter dated February 12, 1991, supported the project. The Energy Office was of the opinion that the proposed cogeneration facility contributes to the conservation of energy and promotes the energy goals and policies of the District of Columbia; that the project is consistent with the Public Service Commission's initiative in implementing cogeneration technology; and that it meets the requirements of a qualifying cogeneration facility under the Public Utility Regulatory Policies Act of 1978.

47. The Associate Regional Director, Land Use Coordination, National Park Service, by letter received on March 13, 1991, recommended that the consideration of the proposed facility should be deferred pending the completion of a complete visual analysis to address the potential visual impacts of the stack within the viewshed of the Potomac River, the Potomac Palisades, the George Washington Memorial Parkway, the Chesapeake & Ohio Canal National Historical Park, and the Archbold Parkway.

48. The record contains a letter, dated March 12, 1991, from the Zoning Administrator to counsel for the applicant. The Zoning Administrator indicated that he was of the opinion, based on his review of a letter from counsel dated March 6, 1991, that the applicant would be required to seek a variance from the use provisions. The Zoning Administrator indicated that he was not aware that the proposal was going to be a cogeneration facility at the time that he prepared his original referral memorandum dated October 11, 1990. The Zoning Administrator was of the opinion that the immediate use proposed for the cogeneration facility exceeds what is expected to be a University use.

49. The Chairperson of Advisory Neighborhood Commission (ANC) 2E testified at the public hearing that, after presentation by the applicant and community discussion on the environmental and other

aspects of the project, the ANC 2E was unable to reach a consensus and, therefore, took no position on the application.

50. The Chairperson of ANC 2E testified at the public hearing as the Single Member District Commissioner (SMD) for ANC 2E-02 in support of the application. The SMD Commissioner's support was generally based on the positive environmental aspects of the proposal and because the project would help facilitate the ability of the University to construct on-campus undergraduate students housing in an expeditious manner, thus relieving the surrounding neighborhood of the impacts created by existing undergraduate students residing off-campus. The Single Member District Commissioner filed a report prepared by an environmental consultant for the ANC evaluating the environmental impacts of the proposed facility. The report generally supported the information contained in the Environmental Impact Statement filed by the applicant and generally concludes that the size of the facility is based on the projected energy demands of the user over the lifetime of the facility and is justified by actual end use requirements; it is designed to recapture thermal energy which might otherwise be wasted and its location on campus would minimize energy losses through transmission and distribution; its use of the cleanest combustion fuels available combined with the best available control technologies should minimize environmental pollutants both to the immediate community and the greater energy planning region; and, it should provide marginal improvements such as the reduction of truck traffic and solid waste without any clear likely sources of degradation.

51. Two other Single Member District Commissioners from Advisory Neighborhood Commission 2E testified at the public hearing in opposition to the application. The opposition was generally based on the following:

- a. The nature of the proposed use, which calls for the sale of 100% of the electricity produced to PEPCO, indicates a commercial use and is inappropriate for a residential area.
- b. The size of the facility is industrial in scale and the capacity for steam and electricity generated by the facility exceeds the projected demand of the University.
- c. The steam needs of the University could be met through use of the existing gas-fired boilers.
- d. The applicant should more properly be seeking relief through the use variance process.
- e. The Board should require the preparation of an independent environmental impact statement to address the

environmental impacts of the facility prior to deciding the application or should defer consideration of the application until after DCRA and the Public Service Commission have completed their review of the project.

52. Advisory Neighborhood Commissions (ANC) 2A, 3B, 3C and 3D opposed the granting of the application through written submissions and testimony at the public hearing. The opposition was generally based on the following:

- a. The operation of an electricity-producing cogenerating power plant is not clearly incidental or subordinate to the primary use of satisfying the University's heating and cooling needs.
- b. The capacity of the existing steam boilers is sufficient to meet the projected needs of the University. In addition, the existing coal-fired boiler could be shut down, providing environmental improvements without building a cogeneration facility.
- c. The proposed addition will dramatically increase the size of the existing plant and create additional noise levels which will adversely affect the surrounding residential area.
- d. The Board should not authorize the construction of the proposed facility necessitating the export of electricity through residential neighborhoods until it has been determined whether there is a cause and effect relationship between electro-magnetic fields and cancer in humans.
- e. The sale of electric power produced by the facility to PEPCO does not further the academic mission of the University.
- f. The granting of the application would set a precedent and thus encourage the construction of similar facilities on other university campuses in the city.
- g. The applicant should be required to seek a use variance rather than a special exception.

53. The record contains several letters in support of the application from area residents, local organizations, and Congressmen Dingell and Bliley, members of the U.S. House of Representatives' Committee on Energy and Commerce. A representative of the Business and Professional Association of Georgetown, as well as two area residents and a professionally-interested non-resident, testified at the public hearing in support

of the application. The support was generally based on the following:

- a. The use of cogeneration technology in general, and at the subject site in particular, would result in the use of the University's steam requirements to generate power in a cost-effective, conservation-oriented manner. The use of cogeneration is consistent with Congress' objective of encouraging energy conservation and will help to carry out the goals of the Clean Air Act.
- b. The proposed use is appropriate as an accessory to the University use as evidenced by the existing power plant and small cogeneration facility currently located on campus.
- c. The proposed use will not adversely affect interests protected by zoning and will result in an overall improvement to the environment, including improved air quality, reduced solid waste disposal, and reduced truck traffic.
- d. The project conforms with the prescribed acceptable range for performance standards regarding safety, noise, pollution control, and environmental impacts.
- e. The cost-effective operation of the proposed facility will result in savings for the University, and such savings may help reduce the cost of higher education and other University services.

54. City Council Member James Nathanson, Ward 3, testified at the public hearing in opposition to the application on the grounds that the proposed use was incompatible with the residential character of the area, there were unresolved environmental issues, and the project constituted a commercial use.

55. The record contains several letters and petitions in opposition to the application. The Citizens Coalition, representing residents, several of the participating advisory neighborhood commissions, and several community organizations including the Glover Park Citizens Association, Palisades Citizens Association, Foxhall Citizens Association, Citizens Association of Georgetown, Hillendale Citizens Association, and Burleith Citizens Association, opposed the granting of the application. The basis of the opposition expressed by the Citizens Coalition generally reiterates the concerns expressed by the ANC representatives in Findings of Fact No. 49 and 50. Many of the individual members of the Citizens Coalition testified at the public hearing in opposition to the application and submitted written materials in support of their views. The opposition expressed by the Coalition

is generally summarized as follows:

- a. The proposed facility represents the intrusion of a commercial use in a residential area because none of the electricity generated by the proposed facility will be used to provide direct electric service to the University. All of the electricity generated by the proposed facility will be sold to PEPCO, which will govern the construction and operation of the facility, at a price favorable to the University which will then repurchase its needed electrical power from PEPCO at standard rates.
- b. The proposed facility is designed to produce an extremely large amount of electricity relative to its steam production. In addition, the steam producing capability far exceeds the current and estimated needs of the University over the life of the campus plan.
- c. The University could produce sufficient steam to meet its projected needs by constructing a smaller cogeneration facility. The construction of a smaller facility would proportionally reduce the amount of pollutants generated by the operation of the cogeneration facility. The applicant could construct additions to a smaller facility over time to meet its needs, if required.
- d. The existing facility is adequate to produce the steam required to meet the University's projected needs. If the existing coal-fired boiler were removed and the two existing natural gas-fired boilers were converted to rely on low-sulfur fuel, the facility would still be capable of meeting the University's steam needs and would result in significantly reduced pollution levels.
- e. The examples of cogeneration facilities existing or proposed on university campuses cited by the applicant are not relevant to the instant case because they are generally smaller than the proposed facility and/or are located on much larger, less urban campuses which provide greater buffering between the facilities and surrounding communities.
- f. The existing facility is currently objectionable to neighbors with regard to noise generated during certain periods of operation. The proposed addition could exacerbate the existing objectionable level of noise created. The limits imposed by law would hold the total amount of noise to that which currently exists, however, if the noise occurs at different frequencies, it could become even more objectionable to the neighbors.

- g. The large size of the proposed facility and the transmission of the electricity generated at the site to the PEPCO grid, will produce a significant increase in the electro-magnetic fields at power lines in the adjacent residential community.

56. The Citizens Coalition offered the testimony of an expert in the area of cogeneration. The cogeneration expert supported cogeneration in principle, but argued that an smaller cogenerator could meet all the University's projected steam needs while generating 20 megawatts or less of electricity and significantly less pollution. In addition, the expert witness testified that the construction of a smaller facility could result in a more efficient operation. The witness testified that, while there is some debate within the scientific community as to whether exposure to EMF's is associated with cancer in humans, the proposed would nevertheless expose nearby residents to increased EMF at power lines carrying the newly generated electrical energy through the adjoining residential areas, possibly creating negative effects.

57. The Citizens Coalition and other parties argued that the subject application was incorrectly advertised and noticed as seeking special exception relief. The Coalition argued that the proposed facility can not qualify for a special exception in an R-3 District because the plant is designed for the primary purpose of generating electricity for commercial sale and profit, rather than for the purpose of meeting the University's energy needs, and therefore, is not a valid accessory use to the university. In order to qualify as an accessory use, the proposed facility must be (a) related to the principal use; (b) subordinate and clearly incidental to the principal use; (c) customarily incidental to the principal use; (d) located on the same lot as the principal use; and (e) must not alter the character of the area or be detrimental thereto. The Coalition requested that the application be rescheduled and rennoticed for consideration as a variance from the use provisions. The Coalition noted its concurrence with the Zoning Administrator's determination contained in the letter dated March 12, 1991.

58. The Board deferred consideration of the application at its public meeting of April 3, 1991 in order to receive from the Zoning Administrator a copy of the documentation upon which he based his decision contained in his letter of March 12, 1991, and responses thereto from parties to the application.

59. In addressing the preliminary motions and arguments, the Board finds as follows:

- a. The Board does not concur with the arguments put forth by the opposition or the correspondence from the Zoning Administrator that the use of the site for a cogeneration

facility would require a variance from the use provisions because it does not constitute an accessory use. The Board is of the opinion that the provision of a central utility plant is common on university campuses in the city and is, therefore, related to the principal use of the site. Prior Board decisions have recognized the production of cost-effective utility service to be in an integral component of providing energy for University operations. The proposed addition to the existing central utility plant, designed to meet the present and future steam needs and chilled water capacity required by the University, does not threaten the dominant use of the property as a University. The University has a history of power plant usage at the subject site dating back to 1968 with Board approval pursuant to BZA Order No. 9539. As noted in Finding of Fact No. 9, the Board approved a request for a special exception to use the site for cogeneration purposes by its Order No. 13894. The concept for the proposed cogeneration facility was approved in both the 1983 and 1990 campus plans adopted by the Board. In its Order approving the Bicentennial Campus Plan, the Board included a condition approving the cogeneration facility in concept and directing the applicant to file an application for further processing of the project. The Board finds that the application has been properly filed and advertised as a special exception for further processing under Section 211.

- b. With respect to the request for deferral pending review of the project by the DCRA and EPA, the Board finds that it would be inappropriate to postpone its consideration of a properly filed application simply because the project must undergo other review processes. The Board notes that multiple review of a project by several agencies for consideration based on the criteria specific to the individual agencies is not uncommon. The Board is of the opinion that proceeding with the application process before it will not negate the authority of other reviewing agencies nor will it alter the necessity of such projects to comply with the applicable requirements of those agencies.
- c. With regard to the request for preparation of an independent Environmental Impact Statement, the Board notes that it is not the lead agency for review of environmental issues and that the preparation of such a statement would be beyond the expertise and jurisdiction of the Board.
- d. With respect to the concern about the visual impact of the stack, the Board notes that its approval of the stack

would be subject to further design and impact review by the Commission of Fine Arts.

60. The Board is required by statute to give "great weight" to the issues and concerns raised by the ANC's. In addressing the issues and concerns expressed by the ANC's and other parties in opposition, the Board finds as follows:

- a. The proposed addition to the existing central utility plant is accessory to the principal use of the University as set forth in Finding of Fact No. 56(a).
- b. The fact that the cogeneration process provides for the interchange of the electricity generated by the facility with PEPCO does not change the nature of the use which has existed on campus for a number of years. The Board notes that the simultaneous production of the steam required for university use and electricity which will be added to the public grid supports the national policy which promotes the use of cogeneration as an energy conservation measure as set forth in Findings of Fact No. 10, 17, 25, and 44.
- c. The sale of the electricity generated by the proposed facility to PEPCO results from the applicant's analysis of the best approach to most efficiently implement the benefits available through the cogeneration process and does not render the facility a commercial use. The Board does not find it inappropriate that the University attempt to reduce its utility costs through the cogeneration process in an effort to reduce its overall costs. Although not applicable in the instant case, the Board notes that, in its Order No. 15302, it found that commercial uses are not inappropriate on university campuses provided that they are in furtherance of the University's essential mission and that they do not have substantial adverse impacts on the surrounding community.
- d. The capacity of the proposed facility is appropriate given the University's need to meet its peak projected needs for steam, chilled water, and electricity over the life of the project as set forth in Findings of Fact No. 15, 16, 17, 20 and 21. The Board notes that the applicant estimates that the University will utilize approximately 70% of the overall capacity of the facility during the initial year of its operation.
- e. The Board is persuaded that incremental development of the proposed facility is not reasonable given the University's immediate energy needs as set forth in Finding of Fact No. 26.

- f. The Board shares the concerns expressed by the opposition with regard to potential adverse environmental impacts created by the facility. However, the Board is persuaded that the applicant has made every effort to mitigate any such impacts and, in fact, has indicated improvements to existing conditions in certain areas. The Board notes that the operation of the facility is subject to further review processes before federal and local bodies to ensure that it complies with all applicable laws and regulations with respect to environmental, noise, design and safety features.

CONCLUSIONS OF LAW AND OPINION:

Based on the foregoing Findings of Fact and evidence of record, the Board concludes that the applicant is seeking a special exception, the granting of which requires the applicant to demonstrate substantial compliance with the criteria set forth in Sections 211 and 3108.1 and that the requested relief can be granted as in harmony with the general purpose and intent of the Zoning Regulations and that it will not tend to adversely affect the use of nearby and neighboring property. The Board concludes that the applicant has met the requisite burden of proof. The project is designed to meet all applicable federal and local environmental, design and operational standards; does not increase the number of employees or students on the campus; is located so that it is not likely to become objectionable to neighboring property because of noise, traffic, number of students or other objectionable conditions. The proposed structure complies with the bulk and area requirements of the zoning regulations. The project is in general compliance with the approved campus plan for the University. The Board further concludes that it has afforded the ANC's the "great weight" to which they are entitled.

The Board further concludes that, as hereinafter conditioned, the application is not likely to adversely impact on adjacent and nearby properties. Accordingly, it is hereby **ORDERED** that the application is **GRANTED, SUBJECT** to the following **CONDITIONS**:

1. Construction shall be in compliance with the plans marked as Exhibit No. 109 of the record, with the flexibility to make any design changes requested by the Commission on Fine Arts during its review of the project and the flexibility to modify the location of interior equipment.
2. Approval shall be conditioned on compliance with the air permitting process provided for under the U.S. Environmental Protection Agency (EPA) and the District of Columbia Department of Consumer and Regulatory Affairs (DCRA) regulations. The project shall fully comply with

all requirements and conditions of the federally enforceable air permit, which would include limits on the annual quantity of fuel oil firings and total annual fuel consumption.

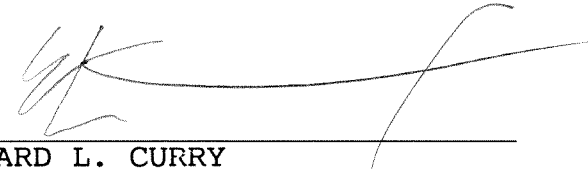
3. The project shall comply with all requirements under the District of Columbia Environmental Policy Act. Pursuant to that Act, the project is presently undergoing review by DCRA and shall comply with any conditions imposed by DCRA as part of its approval.
4. The cogeneration facility shall use gas as the primary fuel, with distillate fuel oil as the backup. All operations of the facility shall be in compliance with the applicable requirements of the D.C. Public Service Commission.
5. The existing coal-fired boiler shall be shut down once the cogeneration facility is operational, in accordance with the requirements of the air permit. The natural gas/fuel oil fired boilers shall be placed on standby operation and shall operate only during periods of down time for the cogeneration facility or during brief periods of extremely high University steam demand.
6. With regard to noise, the project shall comply with the District of Columbia Noise Standards contained in 20 DCMR 3001 which provides for a level of 55 decibels during the nighttime and 60 decibels during the daytime at the nearest campus property line. The project shall employ noise mitigation measures to minimize the exterior noise levels for nearby on-campus land uses.
7. The storage of materials and the handling of small quantities of hazardous waste shall be in compliance with District of Columbia and federal requirements. Since the University is presently considered a hazardous waste generator, various preparedness and emergency response plans and personnel training programs are already required and shall be continued. Existing District of Columbia and federal regulations for storage and disposal of hazardous waste shall be fully met.

VOTE: 4-0 (Sheri M. Pruitt, Charles R. Norris, Paula L. Jewell and Carrie L. Thornhill to grant).

BY ORDER OF THE D.C. BOARD OF ZONING ADJUSTMENT

BZA APPLICATION NO. 15434
PAGE 23

ATTESTED BY:



EDWARD L. CURRY
Executive Director

FINAL DATE OF ORDER: JUL 31 1991

PURSUANT TO D.C. CODE SEC. 1-2531 (1987), SECTION 267 OF D.C. LAW 2-38, THE HUMAN RIGHT ACT OF 1977, THE APPLICANT IS REQUIRED TO COMPLY FULLY WITH THE PROVISIONS OF D.C. LAW 2-38, AS AMENDED, CODIFIED AS D.C. CODE, TITLE 1, CHAPTER 25 (1987), AND THIS ORDER IS CONDITIONED UPON FULL COMPLIANCE WITH THOSE PROVISIONS. THE FAILURE OR REFUSAL OF APPLICANT TO COMPLY WITH ANY PROVISIONS OF D.C. LAW 2-38, AS AMENDED, SHALL BE A PROPER BASIS FOR THE REVOCATION OF THIS ORDER.

UNDER 11 DCMR 3103.1, "NO DECISION OR ORDER OF THE BOARD SHALL TAKE EFFECT UNTIL TEN DAYS AFTER HAVING BECOME FINAL PURSUANT TO THE SUPPLEMENTAL RULES OF PRACTICE AND PROCEDURE BEFORE THE BOARD OF ZONING ADJUSTMENT."

THIS ORDER OF THE BOARD IS VALID FOR A PERIOD OF SIX MONTHS AFTER THE EFFECTIVE DATE OF THIS ORDER, UNLESS WITHIN SUCH PERIOD AN APPLICATION FOR A BUILDING PERMIT OR CERTIFICATE OF OCCUPANCY IS FILED WITH THE DEPARTMENT OF CONSUMER AND REGULATORY AFFAIRS.

15434order/SS/bhs

GOVERNMENT OF THE DISTRICT OF COLUMBIA
BOARD OF ZONING ADJUSTMENT



BZA APPLICATION NO. 15434

As Executive Director of the Board of Zoning Adjustment, I hereby certify and attest to the fact that on JUL 31 1991 a copy of the order entered on that date in this matter was mailed postage prepaid to each party who appeared and participated in the public hearing concerning this matter, and who is listed below:

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EDWARD L. CURRY
Executive Director

JUL 31 1991

DATE: _____

15434Att/bhs